

protein comprising all of SEQ ID NOS: 2, 3 and 4. This rejection is traversed.

Example 2 begins by stating:

"Based upon the predicted MAGE-1 amino acid sequence, three oligopeptides were prepared."

In other words, given the recombinant work in example 1, which included isolation of the gene, cloning it, expressing it, and sequencing it, one could predict amino acid sequences. While the genetic code is degenerate in that multiple codons correspond to one amino acid, it is also true that one codon always corresponds to a particular amino acid. This does not change. How did applicants get to the sequences, if they were not found in MAGE-1's sequence? Hence, it is believed that this rejection is in error, and should be withdrawn. This should free claim 20 of all rejections and it, like claim 17, should now be deemed allowable.

The Examiner has stated that claim 8 is in improper Markush format. Applicants disagree. It is agreed that if the phrase "selected from the group consisting of" were used, then "and" rather than "or" would be the only appropriate choice for grouping. Nothing requires an applicant to use Markush language when several alternatives are presented in a claim. Many patents employ either/or language in their claims. Applicants have proffered some minor amendments to the claim, but see no need to employ Markush terminology.

Applicants now turn to the rejection under 35 USC § 112, first paragraph. The Examiner cites to Lazar and Burgess for the

proposition that a single change in amino acid residues can dramatically alter protein behavior. Even though the proteins are in a non-analogous area (growth factors), the Examiner maintains his position.

Applicants traverse. As a general rule, a change in a single amino acid is expected to not impact a protein's behavior. The Nobel prize winner Dr. James Watson has taken this position, as has the Board of Patent Appeals and Interferences. See Ex parte Anderson, 30 USPQ 2d 1866 (Bd. Pat. App & Int. 1994) at 1868. Note the Board's statement

"(A)s a matter of textbook chemistry, a single variation in the amino acid structure of a protein does not normally change the activity and function of the protein unless the single variation is in a critical region of the protein."

It is unquestionably true that Lazar and Burgess report that, for the particular proteins they describe, the single changes resulted in changes in properties. One can find exceptions to every rule. This does not change the rule, however.

Further it is asserted that there is no reason to believe that changes within the ambit of what is claimed would render the claim non-enabling. What is claimed is a tumor rejection antigen precursor. As is explained, in the specification over pages 2-6, tumor rejection antigen precursor are molecules which are processed to tumor rejection antigens, or "TRAS". These are peptides which are presented on cell surfaces, in combination with MHC molecules.

It is well known that TRAs are small peptides, i.e., on the order of 8-12 amino acids. A protein which has a molecular weight of 34.3 kilodaltons, must present sufficient amino acids to present hundreds of potential TRAs. Since the application clearly states that the function of a TRAP is to be processed to a TRA, it is not seen how the Examiner's references, or reasoning, support non-enablement, because neither supports the continuation one would have non-functional molecules within the claim.

Applicants further content that the '774 patent is relevant here. Claim 4 of '774 is very broad. The claims do recite hybridization conditions, but it is maintained that the molecular weight recitations of the present claims parallel hybridization conditions for DNA, i.e., each property defines the claimed product. The cited references are non-analogous, they are not in accord with accepted facts and Board of Appeals precedent, and do not support the recitation. The rejection should thus be withdrawn.

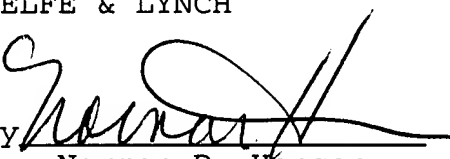
The specification has been corrected at page 19.

All issues have been addressed, and it is believed that this application should now be in condition for allowance. A notice to that end is urged.

Respectfully submitted,

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